



IN THE SPECIFICATION

Please replace the paragraph beginning at page 2, line 18, and ending at page 3, line 2, with the following rewritten paragraph:

However, in such a structure, it is necessary to separate the casing for the electronic circuits and the casing for the antenna ~~[[and]]~~ every time a device is carried and connect them every time they are used. Such a condition is not easy ~~[[for]]~~ from a handling point of view. Also, it is preferable to form the small, rigid casing by a metal member such as an iron, aluminum, and a magnesium for a carrying purpose. However, if the hollow coil antenna is disposed so as to contact the casing, the variance for the resonating frequency and the loss may increase greatly. Also, if the case ~~[[if]]~~ is made from a plastic member and there is a disposition layer such as an aluminum, or a metal member such as an aluminum flake ~~[[is]]~~ contained in a filling member or a painting layer, ~~there may be a case in which~~ then a loss in the coil may increase greatly.

Please replace the paragraphs beginning at page 3, line 25, and ending at page 4, line 20, with the following rewritten paragraphs:

Also, the reader/writer antenna of the present invention is used in an RFID system for performing data communication in a non-contacting manner such that an antenna coil ~~[[id]]~~ is formed by winding a top surface and a back surface of the flat plate around a flat plate magnetic core which is made of a soft magnetic member.

Also, the reader/writer antenna of the present invention is used in an RFID system for performing data communication in a non-contacting manner such that an antenna coil is formed by winding a circumferential surface of a column around a columnar magnetic core which is made of a soft magnetic member.

In the present invention, it is preferable that a thickness of a soft magnetic member or a thickness of a plate magnetic core is set to be approximately 10 mm or thinner. Also, it is preferable that a thickness t for a soft magnetic member or magnetic core for the plate satisfies a relationship $S/L > t > S/(L/\mu)$ under condition that S indicates an area for the antenna coil, L indicates a circumferential length of the antenna coil, and μ indicates a magnetic transmittance ratio of the soft magnetic member.

Also, it is preferable that the soft magnetic member is a compound of either a metal ~~power~~ powder. It is preferable that a flake or a ferrite ~~power~~ powder which are formed by flattening a metal powder, and the metal ~~power~~ powder is either one of a carbonyl iron powder, a reduced iron powder, an atomized ~~power~~ powder, or an amorphous powder. Also, it is preferable that the metal ~~power~~ powder or the flake is a flake which is made by flattening a water-atomized iron base alloy or an iron base alloy ~~power~~ powder mechanically.

Please replace the paragraph beginning at page 11, line 11, and ending at page 11, line 20, with the following rewritten paragraph:

FIGS. 2A and 2B show structures for the reader/writer antennae which are disposed on the metal surfaces. The soft magnetic member 5₁ which is formed by a predetermined material member according to a predetermined manufacturing method₁ is disposed between the antenna coil 4₁ which is formed by a wound coil both ends of which are connected to the electronic circuit 8₁ and the metal surface 6. The magnetic flux which is generated in the antenna coil 4 passes through the inside of the soft magnetic member 5 as shown in FIG. 2B while most of the magnetic flux does not reach to the inside of the metal surface 6. Therefore, it is possible to restrict a variance and increase of the resonating frequency which is caused by an eddy current which is generated in the metal.

Please replace the paragraph beginning at page 14, line 7, and ending at page 14, line 17, with the following rewritten paragraph:

For a method for producing the above ~~compositemember~~ composite member, it is possible to name an injection molding method, a painting method, a compressing molding method, and a roll stripping method. A soft magnetic member 5 which is formed by an injection molding method or a compressing molding method has a characteristic in that it is so rigid that it is hardly broken even if it is formed thinner. In case of a painting method, it is possible to form by forming a flake by flattening a grain powder member by an attritor, a ball mill, and a stamping mill and repeating a painting/drying operation of a painting member which contains the flake or the grain powder member on a film. In such operations, it is possible to dispose the flake in a constant direction by charging a magnetic field during the painting operation; thus, it is possible to enhance the characteristics.

Please replace the paragraph beginning at page 16, line 3, and ending at page 16, line 15, with the following rewritten paragraph:

Also, it is necessary to have a thickness of the soft magnetic member 5 such that the magnetic flux which is generated by the antenna coil 4 can be introduced effectively. However, the thickness of the soft magnetic member should be as thin as possible so as to restrict a protrusion of the antenna coil 4 when the antenna coil 4 is disposed on a metal surface 6. If the thickness of the soft magnetic member 5 exceeds 10 mm, the antenna protrudes; therefore, such a condition is not appropriate for a mobile apparatus. On the other hand, it is difficult to obtain a magnetic core which has 0.02 mm thickness ~~[[of]]~~ or thinner. Even if it is possible to obtain it, a characteristic is unstable. Also, if the thickness of the soft magnetic member 5 is set to be 0.02 mm, there is not an influence for an antenna characteristic and mobility. By judging the above conditions integrally, the range for the

thickness of the soft magnetic member 5 is preferably 10 mm or thinner. More preferably, it should be between 0.02 mm and 10 mm.

Please replace the paragraph beginning at page 28, line 21, and ending at page 29, line 4, with the following rewritten paragraph:

Here, any member can be used for the spacer 14 as long as it is not magnetic or it has a different magnetic characteristics from that of the magnetic member 5. For such a member, it is possible to use an organic member such as a plastic member or a rubber member. Also, ~~[[ass]]~~ as shown in FIG. 8, it is acceptable if the conductive member 7 which is shown in the first embodiment is disposed between the soft magnetic member 5, the spacer 14, and the metal surface 6. In particular, if a member which transmits the magnetic flux 9 is used for the spacer 14, it is possible to obtain an effect for restricting the influence of the metal surface 6 and restricting the inductance and the variance of Q due to the difference of the material member for the metal surface 6.

Please replace the paragraph beginning at page 29, line 11, and ending at page 29, line 18, with the following rewritten paragraph:

In order to confirm the effect of the above antenna, reader/writer antennae are manufactured which have a structure shown in FIG. 7 in which the soft magnetic member 5 and the ~~space~~ spacer 14 are disposed therebetween and structures shown in FIGS. 8A and 8B in which the conductive member 7 is disposed therebeneath; thus, measurement operations are performed for the inductance and Q only for the coil and the inductance and Q for cases in which they are disposed on an aluminum plate, an iron plate, and a stainless steel plate respectively. The results are shown in the above explained TABLES 6 and 7 (in spaces in the second embodiment).